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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 347



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# ASEAN TO LAUNCH ENVIRONMENTAL PROTECTION PLAN

Islamabad THE MUSLIM in English 3 Mar 82 p 4

[Text.]

BANGKOK, March. 2: The five-member Association of South East Asian Nations (ASEAN), in South Asian countries and 23 Pacific islands have launched programmes to fight pollution of their environment.

A spokesman for the United Nations Environment Programme (UNEP) office here said Asian countries (Singapore, Malaysia, Thailand, Indonesia and the Philippines) had contributed 172,000 dollars to an Anti-Pollution Trust Fund for the East Asian Seas.

UNEP will contribute 200,000 dollars to the plan, including half for the Trust Fund.

ASEAN has also formed a co-ordinating body to implement the plan launched early this year.

Sri Lanka, India and Maldives recently spearheaded anti-pollution activities by ratifying the 10-nation Southeast Asia co-operative environment programme in Colombo, UNEP officials said.

A joint environment programme for the South Pacific also underway.

Under the eastern seas action plan, each ASEAN country will implement projects for which it is best equipped.

National Environment Board of Thailand will make oceanography studies while the Marine Science Centre of the University of the Philippines will assess the effects of pollutants on fisheries, mangroves and coral reefs, and the effects

of harmful practices such as dynamite fishing.

Malaysia's Fisheries Research Institute in co-operation with Singapore and Indonesia will initiate research to identify least toxic chemicals that can be used to disperse oil spills in the Malacca Straits.

The Oil and Gas Technology Development Centre of Indonesia will monitor oil pollution and survey pollution sources.

The Geneva-based UNEP Regional Sea Centre will co-ordinate the activities of ASEAN's East Asian Seas action plan.

The programme of the South Asian countries are aimed at better management of the environment in the Indian Ocean, particularly by ending the wasteful use of precious natural resources on which the region's economic development depends.

Sri Lanka, India and Maldives have launched the programme, but UNEP officials said Bangladesh, Burma, Iran, Pakistan as well as land-locked Afghanistan, Bhutan and Nepal were expected to join it.

Three main bodies will implement the programme. They are the Governing Council (Policy-Making Body), the Consultative Committee and the Secretariat in Colombo.

Iran will have the job of setting environmental quality standards

and initiating wildlife conservation programmes while India will undertake education and training in wildlife management.

Pakistan will focus on conserving mountain ecological systems and watersheds, and Bangladesh will study the preservation of Mangrove forests.

Sri Lanka will co-ordinate programmes to assess the cost and benefits of environmental measures while Afghanistan will deal with forestry.

UNEP helped 25 far-flung island territories and countries in the South Pacific launch their first joint programme against pollution two years ago.

Reports on their environment had shown serious problems of pollution. These included nuclear wastes through weapons testing and fresh water pollution.

UNEP officials said the highlight of this programme would be the first conference on human environment in the South Pacific to be held this month in the Cook Islands.

The conference is expected to adopt an action plan to continue assessment of the South Pacific environment.

It will also map out management procedures suited to local conditions, and proposes national legislation and regional measures for effective environmental management.

CSO: 5000/5718

## FOREST CONSERVATION PROJECT FOR KAREN STATES

Rangoon THE WORKING PEOPLE'S DAILY in English 22 Mar 82 pp 1, 4

[Text]

PA-AN, 19 March—A meeting to co-ordinate measures for conservation of forests in Karen State was held at the Karen State People's Council here on 17 March.

The meeting was attended by Karen State People's Council Chairman U Saw Aung Pwint and Executive Committee members, Township People's Council Executive Committee members, Head of the Karen State Forest Department U Tha Hla, the Karen State Timber Extraction Manager and heads of Township Forest Departments from seven townships.

Following the speech by the chairman of the meeting U Kyaw Sein, the Chairman of the Karen State People's Council said that a project for keeping the forest in Karen State ever green and their

conservation was drawn up by the Karen State People's Council Executive Committee under the guidance of the Party Regional Committee. The project was sent to townships and township authorities drew up detailed township-wise projects based on the local geographical conditions. He urged those present at the meeting to discuss and forward suggestions on the project which would be implemented beginning 1982-83.

The Chairman of the Karen State People's Council pointed out that forest covers more than 7.5 million acres in Karen State. So long as the forests could be conserved and kept green, the land would be fertile and the weather would be temperate and favourable for cultivation of crops. He called for all-

out efforts of the personnel concerned for successful implementation of the forest conservation project.

The Head of Karen State Forest Department made a speech. Heads of Township Forest Department from Kaw-kareik, Kya-in-seikkyi, Papun, Pa-an, Myawaddy, Hlaingbwe and Thandaung Townships and members of the Township People's Council Executive Committees in charge of agriculture, meat/fish and forest, forwarded suggestions in discussing the project.

Karen State People's Council Executive Committee member U Saw Nyunt Tin and the Head of the Karen State Forest Department clarified points raised during the discussions and resolutions were passed.

The chairman of the meeting gave a closing speech.—NAB

## CALCUTTA TO IMPLEMENT POLLUTION CONTROL PLAN

Calcutta THE STATESMAN in English 20 Mar 82 pp 1, 7

[Text]

THE Calcutta Metropolitan Development Authority has suggested the creation of an independent water and air management and control organization for the Calcutta metropolitan district to save the area from what its environmentalists call an impending ecological disaster. Such an organization, it feels is urgently needed since the environmental problem has already reached saturation point and further deterioration would seriously threaten human habitation in the 1,368-sq-km metropolitan area.

The Authority has warned that if the present unplanned urbanization and industrialization of the area continues, then by the year 2001, when the metropolitan district would have a population of more than 15 million, its environmental problems would be beyond control.

To counter this the environmentalists of the CMDA have prepared a long-term Rs 326-crore plan for environmental pollution control, which will be implemented in phases between 1982 and 2001. They have stressed the urgency for early implementation of the plan as, according to them, the problem can still be controlled. The plan has given top priority to pollution control in Calcutta and Howrah and to protection of raw water sources for the metropolitan area's community water supply.

The plan points out the organizational weaknesses of the present pollution control bodies in West Bengal and suggests the setting up of a separate water and air control management authority exclusively for the metropolitan area having proper legislative and financial backing. The organization will regulate the use of both surface and ground water and discharge of industrial and domestic wastes.

The operating cost of the programme, according to the plan, will be met by imposing taxes on

polluters as well as beneficiaries of the programme. The Centre also will have to finance the programme since the metropolitan area is in the lower reaches of the Hooghly.

The plan refers to the Hooghly's water quality near the intake points of seven water works (including two which are under construction) and says that bacterially the river is "too polluted" to serve as a water source for public use. According to experts, the bacterial load of the Hooghly, is rising at such an alarming rate that in a few years no amount of chlorination will make its water safe for drinking. The magnitude of the pollution was threatening the existence of the waterworks on the river. They pointed out that since the Hooghly-Bhagirathi river system was the only major source of water for human use in south Bengal, its continued pollution would be disastrous for the entire basin.

Referring to the river's extremely high bacterial load, they add that it had given rise to a high-chlorine economic problem in the Calcutta metropolitan area. The chlorine dosage at the waterworks was being proportionately increased with the rising bacterial load and this had resulted in soaring water treatment cost. Already the problem had become difficult with 270 mgd that were now being withdrawn for public drinking purpose. It is felt that the problem will become more acute when the quantum is raised to 700 mgd by 2001.

Estimates suggest that at the turn of this century the discharge of waste water will be 420 mgd, contributing 1.6 million pound of biochemical oxygen demand (BOD) a day. Experts said that unless proper methods for treatment of sanitary and industrial wastes were adopted the river would be severely polluted.

The CMDA plan has recommended conversion of service privies into low cost sanitary latrines



which will prevent the flow of a large volume of domestic wastes from a vast unsewered area of the metropolitan district into the river. It has also urged the removal of khatahs from the metropolitan area and herding khatah cattle into the four cattle sheds now nearing completion. The CMDA feels that if these two measures are taken Hooghly's water quality would improve significantly and the high water treatment cost would be substantially reduced. The plan also calls for disinfecting and shifting of waste channel outfalls from the vicinity of the water intake points on the river.

The plan has suggested that to help industries to take pollution abatement measures appropriate and inexpensive waste treatment technology be evolved and sold to industries for compliance. The pollution control authorities may group several industries and arrange to take control measures through a combined treatment plant. The industries would have

to pay for use of this plant according to their pollution load.

For air pollution control the plan has suggested that the manufacture of smokeless fuel be financed and encouraged by the Government for slum dwellers' use. Supply of this fuel could substantially reduce the smoke nuisance in the metropolitan area. The plan calls for a proper land use policy and has suggested that no new factories be set up near residential areas. Compulsory increase in the stack height of all chimneys, emitting gases, must be strictly enforced. Industries which throw air pollutants, like particulate matters of metal dust, should install precipitators and purifiers. Industries which lack resources should be helped financially to install the equipment. The plan has also called for extensive plantation of trees in the metropolitan area and correcting defective exhaust of automobiles.

The first phase of the pollution control programme starts next year.

CSO: 5000/7046

# AMENDMENTS TO AIR POLLUTION CONTROL BILL DEBATED

Christchurch THE PRESS in English 26 Feb 82 p 2

[Text] Officers policing clean-air zones should be given right of entry to private residential properties, the Canterbury United Council said in a submission to the Parliamentary Select Committee on the Clean Air Amendment Bill.

The bill tightens controls on pollution.

The Institute of New Zealand Health Inspectors said policing officers needed access to make sure that clean-air zone orders were being complied with, but only when they had reasonable cause to suspect that prohibited or unauthorised fuel-burning equipment or fuels were being used.

Under the Clean Air Act powers of entry are granted officers on to industrial and trade premises for these reasons.

Ivon Watkins-Dow, Ltd, opposed the power given in the bill for enforcing officers to take photographs on a site. Unjustified disclosure of information in the photographs could harm companies, and penalties were not high enough to discourage this. Investigating officers should be allowed only to "request" photographs.

Several submissions asked that installation and sale at retail and wholesale levels of unauthorised fuel-burning equipment and fuel be made an offence.

At present, offences are confined only to the "use" of unauthorised equipment in a

clean-air zone, and only the retail sale of unauthorised fuels.

The Canterbury United Council objected to the deletion of "burning in open spaces" from the definition of fuel-burning equipment. While "smoke" and "best practicable means" of reducing pollution were controls to some degree, fires in the open would be harder to control as a result, the council submitted.

The fertiliser company criticised the strict liability now placed on occupants of premises from which excessive pollution was emitted unknowingly. Genuine human error and wilful interference with plant were not permitted defences.

It also objected to powers given investigating officers to shut premises when an imminent danger to health was suspected.

This was totally unacceptable. An officer could never have sufficient knowledge to shut down a plant and leave it in a safe condition. There was also no requirement for an officer to identify himself.

The Centre for Environmental Studies, Tasmania, said that the promised Government subsidies towards local authority clean-air schemes was a breakthrough. Local authorities, although they were empowered to make grants towards conversion of equipment, rarely had the funds, unless ratepayers were unfairly levied in relation to ratepayers not in clean-air zones.

CSO: 5000/9067

LEGISLATION URGED TO FIGHT ENVIRONMENTAL ABUSE

Karachi MORNING NEWS in English 19 Mar 82 p 9

[Article by Lionel Andrades]

[Text] Cows feed on garbage strewn on the roads, bushes surround a school that is falling apart, a man breaks a part of a bridge and makes it the entrance to his home, in Karachi.

It is apparent that poor circumstances can make one have to accept poor standards of living. Until a city can collectively become numb to severe environmental conditions. And then a stage is reached when their values are conditioned by the environment and they feel at home in sub human conditions.

This week the approval of the Environment Protection Ordinance has been a significant development, perhaps historic, in the country.

Legislation against environmental abuse may soon become a reality. The agency that will enforce the legislation is expected to see that uniform standards of regulation for pollution control will be applicable to the industries in Karachi, notably.

Aside from marine and air pollution by industries the agency could hopefully enforce legislation that discourages individual spread of pollution on the streets.

There is legislation in some countries that discourage the random disposal of garbage. In the UAE cars are not only checked if they are maintained well but the last date they were painted is also confirmed.

Legislation to check the rate of carbon monoxide emitted by vehicles is supported with the availability of special instruments that check vehicle exhaust pollution.

Plastic bags are sold at a nominal rate in countries where it is unlawful to dispose of garbage not contained in bags and not thrown at garbage dumps.

If similar legislation is enacted here perhaps people will cease to throw rubbish from the top floor of their tenement houses. Also people may then be concerned at the sight of dirt on street where they live, because of a possible fine.

The right to a clean environment; the right to adequate conditions of life in an environment that permits a life of dignity and well being seem like words that have a poetic charm but contain a message that cannot be implemented by most Karachites.

BRIEFS

AFFORESTED SHELTERBELT FUNDS--Yinchuan, March 26 (XINHUA)--The central government will allocate 40 million yuan this year for a 7,000-kilometer afforested shelterbelt from Heilongjiang Province in northeast China to Xinjiang Uygur Autonomous Region in the northwest, according to the shelterbelt construction bureau. The bureau said one million hectares will be planted with 2,500 million saplings, focused in 190 counties across 11 provinces and autonomous regions, deserts and loess highland. Known as a "great green wall," the shelterbelt's construction began in 1978 and 300 million yuan have so far been spent by the central government to cover three million hectares and establish nurseries on another 330,000 hectares. The bureau said they hope to complete the entire project's first phase by 1985. Supplemented with local funds, those in shelterbelt areas are planting hilly areas and sandy land with both timber and fuel trees, forming windbreaks on fields and pastures, the bureau said. Hebei and Liaoning Provinces and the Inner Mongolia Autonomous Region sowed 1,370 hectares by plane last winter, using a newly developed technique of wrapping seeds in a small ball of mud, the bureau said. The forestry department hopes this year to link the shelterbelts established in the previous four years, said the bureau. [Text] [OW261420 Beijing XINHUA in English 1218 GMT 26 Mar 82]

CSO: 5000/2092

NATURAL POLLUTION IN LAGUAN LAKE

Cebu City VISAYAN HERALD in English 5 Mar 82 pp 5, 11

[Article by Michael A. Bengwayan]

[Text] LOS BANOS, Laguna--(DEPTHnews)--It will take sometime--probably beyond year 2000--to develop Laguna Bay as hub of agro-industrial growth capable of supporting a population density of 14 million.

Main reason for this, as pinpointed by the Laguna Lake Development Authority (LLDA), is the increasing pollution caused by excessive nitrogen inflow and aggravated by effluents from nearby industrial plants.

No less than the LLDA general manager, Brig. Gen. Amado M. Santiago, admitted that little has been done to abate pollution in the lake.

Suprisingly, he said, excessive nitrogen from natural elements, more than chemical refuse from factories, is causing the deterioration of the lake's ecology.

Natural elements coming from domestic and livestock wastes comprise 70 percent of the nitrogen that is deposited into the lake. This nutrient and fertilizing agent of the lake's organisms causes excessive growth of algae, Santiago explained.

Although algae is the main food of fishes, it competes with the fishes for oxygen when too abundant. A result is what is known as "fish kills", a phenomenal case of nitrogen imbalance, leading to the death of thousands of fishes, Santiago added.

The 900-kilometer Laguna lake is considered the largest in the ASEAN region.

Earlier studies by the United Nations Environmental Program (UNEP) had pinpointed the lake as a centerpiece that can support a high population density and agro-industrial growth in the next century, if properly developed.

"The presence of this large body of water makes the Laguna region one of the few areas in the Philippines potentially able to support a concentration of population (14 million) and industry of the size projected for the year 2000 with a supply of abundant fresh water at a resonable cost," the agency said.

Aside from pollution of the lake, resources also are underutilized, according to LLDA.

For instance, only 41 percent of the 18,925 hectares of surrounding farms is irrigated during wet season and only less than 29 percent is planted to rice in the dry months when the water gets brackish and unfit for irrigation.

The small fishermen around the lake are not benefitting much either because of the bent of big entrepreneurs to monopolize the commercial fish farming areas. Already, some 5,000 had been fenced and reserved as fishpens by these bigtime operators. As a result, the small fishermen could barely eke out a living from the available areas.

Santiago cited saline waters from the sea and toxic substances from the Pasig River as added constraints on the development of Laguna Lake's resources. These enter the lake when water levels are low.

Such backflow occurs normally because the lake is only one meter higher than Manila Bay. Laguna lake was actually a portion of Manila Bay, Santiago explained.

Sedimentation, on the other hand, is a welcome development. Alluvial deposits, in the long run, become farmlands because of urbanization. But it will soon be necessary to undertake reclamation of the shallower portions of the bay, Santiago said.

CSO: 5000/5719

MEASURES PROPOSED TO HALT BANGKOK SINKING

Bangkok THE NATION REVIEW in English 12 Mar 82 p 1

[Text] A package of measures will be tabled to the Cabinet next month to prevent Bangkokians from pumping groundwater and save the city from sinking beneath sea level, Secretary General of the National Environment Board Kasem Snidwong na Ayudhya said yesterday.

Kasem, accompanied by Science, Technology and Energy Minister Wing Commander Thinakorn Bhandhugravi, told a press conference that many areas in Bangkok have been sinking to an alarming level and "the city will definitely be under the sea water in the next few years if we leave the problem untouched."

In Bangkok, he said, the city plan has never been implemented to control the construction of buildings and the volume of water consumption in the city has been on the rise for its population increases by 5-6 per cent every year.

The Metropolitan Water Works Authority has limited capacity in supplying tap water to consumers and it has also been the biggest consumer of groundwater - the major resource that maintain the level of land, he pointed out.

The NEB secretary general said the daily total consumption of groundwater from artesian wells by industrial factories and housing projects is about 1.3 million cubic metres--the volume that is above the capacity of groundwater from other areas to flow to the zones where water is pumped from beneath the ground.

And this caused the land to subside, he said, adding that the surface subsidence was mostly in bowl shape.

He indicated that the NEB, after years of research and study, divided sinking areas in Bangkok into three categories based on their seriousness.

The most critical areas are Phrakanong, Bangkokpi, Huay Kwang, Phrapadaeng on the east side of the Chao Phya River, district community areas in Samut Prakarn and industrial zones in Minburi-Lardkrabang-Bangpli where the sinking level is more than 10 centimetres annually.

The second critical zone where land subsidence rate has been recorded at 5-10 centimetres annually includes Bangkokhen, Dusit, Phayathai, Pathumwan, Bangrak



and Yannawa. The level of groundwater in these areas has also dropped very sharply.

The third critical zone, with an annual rate of surface subsidence below five centimetres, covers areas besides the first and second zones in Bangkok and three outlying provinces of Nonthaburi, Pathum Thani and Samut Prakarn.

Kasem said the NEB which has seriously studied the issue proposed that substitute water sources had to be found to prevent people from digging artesian wells and using groundwater.

The National Economic and Social Development Board has been assigned to study the details with two alternatives - water from the Mae Klong River will be taken for consumption by digging canals to switch the water direction or using water from the Pasak River, he added.

It will take years and high investment for both alternatives but it's time the government invest for this, he said.

He continued that an urgent plan had also been mapped out to prevent the first and most critical zone from sinking by discouraging people from using water from artesian wells.

One of the proposed measures is that consumers will have to pay for groundwater, he said.

He said the measures mapped out by the NEB would possibly be submitted to the Cabinet next month for its decision.

CSO: 5000/5718



## FORESTS TO BE GONE IN 21 YEARS: ESCAP REPORT

Bangkok BANGKOK POST in English 14 Mar 82 p 3

[Article by Imtiaz Muqbil]

[Text]

THAILAND'S forest areas, being depleted at the approximate rate of 1.4 million hectares per year, will be completely wiped out within 21 years, according to the regional arm of the United Nations.

Thailand and Indonesia, where the deforestation rate is 1.5 million hectares per year, are suffering from the most extensive pace of forest depletion in all the 44 member countries of the UN Economic and Social Commission for Asia and the Pacific.

An ESCAP report, released last week, said Malaysia had the highest percentage rate of deforestation and risk of losing its forests in 12 years. The Philippines, with a 14 per cent rate of destruction, would lose its forests in 14 years and Sri Lanka in 18.

The report said that forests were being cut down by shifting cultivators, people who wanted to put up settlements, wood-cutters or commercial logging companies. Various, the destruction was the result of population pressures and commercial loggers trying to meet a world-wide demand for timber.

Seventy per cent of the world's tropical wood ex-

ports originate from the Asian and Pacific countries, ESCAP said.

It said deforestation was leading to intensified seasonal flooding, water shortages in dry seasons, accelerated erosion of agricultural land, siltation of rivers and coastal waters and the disappearance of plants and animal species.

The report said all the countries were trying to remedy the problem but the programmes could not cope with the pace of destruction and their effectiveness was "very limited for various reasons."

It said that in Thailand, measures were being taken to reforest the areas with fast-growing species, resettle the hilltribes seen as bearing some of the responsibility for the problem and improving the soil conditions to prevent desertification of the denuded land.

The report also pointed to pollution of the seas as being another major problem and Thailand, the Philippines and Malaysia were cited as suffering from nearly every possible form of such pollution.

The name of Thailand cropped up with reference to the destruction

of coastal mangrove areas to make way for urban development, industrial establishments and coastal mining, siltation of river mouths and coastal channels, pollution of inland and marine water, and wiping out of coral reefs.

"The Chao Phya river carries heavy loads of pollution, 70 per cent of which comes from domestic sources," the report said. "The presence of heavy metals has been reported in fishes and benthos. Though this generally below the safe limit for human consumption, the situation may not continue for long if the present trend of marine pollution prevails."

The report also cited figures of the National Environment Board as showing that Bangkok's air, polluted by the presence of more than half a million vehicles, contained between 1.39 and 32.4 parts per million of carbon monoxide concentration, well above the safety standards of nine parts per million.

In Bombay, air pollution was found to consist of 38.4 per cent carbon monoxide, 33.4 per cent sulphur dioxide and 9.8 per cent nitrogen oxides.

Seventy five per cent

of Manila's eight million people do not have potable water and 90 per cent of its homes are not connected to sewers.

Forty per cent of Japan's rivers, lakes and seas do not meet the environmental standards. One river in Tokyo and another in Osaka were found to be polluted with cyanide, the report said.

And what is being done about all this? Precious little, according to the report, indicating that most of the countries involved were big on proposals but short on action.

"Very few" countries have ratified international conventions on prevention marine pollution, it said. Governments have talked about the need to monitor and study the pollution levels, exchange information and expertise on combatting them and set up regional training centres and action plans but little has been done to follow them up.

The five-member countries of ASEAN have set up an environment programme that will give special attention to oil pollution control, waste management and information exchange.

In spite of the poor situation, the report said, ESCAP felt the future prospects for combatting the problems appear "bright." This, it said, was because people were beginning to understand the nature of the problem, laws were being enforced to combat it, training was being enhanced and national programmes have been enacted to stop environmental destruction.

Still, the report admitted that the results of these programmes, many only recently promulgated, would take several years to become apparent.

# NEW NATIONAL CONSERVATION COMMITTEE TO BE ESTABLISHED

Bridgetown ADVOCATE-NEWS in English 10 Mar 82 p 1

[Text]

The Parks and Beaches Commission and the Barbados Caves Authority are to be merged to become the National Conservation Commission.

Mr. DeLisle Bradshaw, Minister of Housing and Lands, while moving a Bill in the House of Assembly yesterday to revise and consolidate the law relating to public parks and beaches, said that it was discovered that the functions of the two bodies were somewhat similar and as early as 1977 Cabinet decided that the two authorities should be amalgamated.

The Minister added, however, that it was not possible to seek Parliamentary approval which would see the repealing of the two Acts since Cabinet decided that until Harrison's Cave in St. Thomas was opened it would not be necessary to proceed with the measure.

Mr. Bradshaw said that the National Conservation Commission will have wider functions than at present obtained under the Caves Authority and the Parks and Beaches Commission.

Its responsibility will include some of the functions and responsibilities currently undertaken by the Barbados National Trust.

The problem or concern of conservationists and preservationists over the

question of preserving sites or places of architectural interests or national monuments will now be taken care of", the Housing and Lands Minister said.

Mr. Bradshaw said Government was very interested in the environment and the maintenance of the environment.

He added that the Town Planning Department already had the power to insist that some places remained of historic importance. And he added that there were regulations which forbade destruction of some of these "older places".

The Minister noted that Government last year passed the Tree Preservation Bill which was another step towards conserving the natural beauty of the country.

"Our heritage ought to be regarded by all of us as something very dear to our hearts", Mr. Bradshaw said.

He noted that the St. Kitts Government, for example, was spending large sums of money in preserving one of its foremost historical monuments, Brimstone Hill.

Mr. Bradshaw said that the Bill for the establishment of the National Conservation Commission also empowered the Minister of Housing and Lands to declare any building, which, in Government opinion, was considered to be of historical appeal or importance, to be preserved.

He stated that the Bill also made provision for the maintenance of access to public beaches, one of the features missing from the previous Acts.

He said the Commission had the power to clear from public parks and beaches derelict objects.

The Minister said that Barbadians must understand that if tourism was to continue to survive then we must preserve as much of our historic buildings as possible.

He said that, at the moment, there was a feeling among some people that the organisation currently looking after the preservation of buildings of historic interest, was concerned only with buildings in which some eminent person lived or had been associated with.

Mr. Bradshaw pointed out that there were also some villages with much historical appeal and said he would like to see the new Commission taking note of these.

DROUGHT THREATENS FORESTS IN MANABI PROVINCE

Quito EL COMERCIO in Spanish 15 Mar 82 p A-1

[Excerpt] The alarming drought that has hit the Manabi area was foreseen as part of the period considered critical which the coastal region would have to endure until the year 2000. The phenomenon is forcing governmental authorities to work out a resettlement program in order to relocate a large part of the population in areas in the country with a brighter future, technical analyses show.

It has been estimated that in order to meet its food needs in the year 2000, Ecuador will require 3,205,000 hectares, which means that the current agricultural frontier will have to be expanded by some 1,662,400 hectares.

And yet, because of the irresponsible cutting of forests, increasing at an annual rate of 4.5 percent, the country could find itself without trees within 22 years, which would mean a rapid disappearance of forest resources and danger to the country's ecosystem and development.

The phenomenon of the drought -- the lack of rainfall has resulted in expansion of the country's desert -- began during the second quarter of this century and the government tried to solve the problem through irrigation systems. However, the process was slow and the drought conditions became alarming by the 1960's. The worst impact on agriculture and the people was in 1963 and 1968, during which years real research was undertaken in order to study the phenomenon and seek solutions.

Once again, the drought has struck rural areas and is wiping out livestock, according to reports from Manabi. The government is showing its concern and has allocated 250 million sucres for an emergency drought plan in order to reduce its effects and calm the fears of Ecuadoran farmers.

As is always the case, Manabi Province has been the hardest hit by the natural phenomenon, to such a point that the nearly 400,000 hectares in the area could be lost because of the lack of rain. Economically speaking and with respect to its water resources, Manabi is not a uniform region. Precipitation plays the most important role in the zone's water conditions.

11,464

CSO: 5000/2079

# REPORT ON VOLCANO ERUPTION

## Population Displaced

FL052330 Mexico City NOTIMEX in Spanish 2312 GMT 5 Apr 82

[Text] Pichucalco, Chiapas, 4 Apr (NOTIMEX)--More than 300 people were trapped when a small hill collapsed in the town of Cardona when the Chichonal volcano erupted again at 1400, a town resident reported. Mr Victor Manuel Alvarez said that the people who were able to escape asked for help from the municipal president of Juarez, Chiapas.

The eruption was preceded by strong tremors that alarmed the residents of the towns near the volcano but the Chiapas and Tabasco government issued releases urging residents to stay home because emigration to the city of Villahermosa [capital of Tabasco State] was continuous. In addition, the Mexican Army was distributing food to the families who remained in the area. People continue to pour into Villahermosa. They are being lodged in more than 16 shelters, including the town's casino, the Tabasco Crea [expansion unknown], the sports center, olympic stadium, federal schools and child care centers.

## Volcano Continues

FL051310 Mexico City NOTIMEX in Spanish 1905 GMT 4 Apr 82

[Dispatch by Carlos Cesar Espinoza]

[Excerpts] Pichucalco, 4 Apr (NOTIMEX)--This morning at 0522, the Chichonal volcano erupted for the fourth time with a heavy rain of ash. National defense secretary Felix Galvan Lopez ordered the evacuation of the inhabitants of this town, which is the aid center for area victims. At Ixtacomitan, a town some 20 kms from here, there was a heavy rain of small stones, not more than 4 cm in size.

The governors of Chiapas and Tabasco, Juan Sabines and Leandro Roviera, respectively, as well as defense secretary Felix Galvan have stated that the two states' inhabitants today lived "a critical but lucky day."

inasmuch as this new eruption has caused no deaths or injuries. For their part, a group of volcanologists studying the characteristics of Chichonal have indicated that the situation is critical but there is no cause for alarm.

According to the experts, there is a possibility the volcanic activity will cease within the next 15 days, due to the fact that so far Chichonal's behavior has been similar to that of the Paricutin more than 40 years ago.

CSO: 5000/2089

## BRIEFS

VOLCANO DAMAGE REPORT--Pichucalco (Mexico), 11 Apr (EFE)--The Mexican Government increased its plans to help the victims of the eruption of "El Chichon" volcano 13 days after it erupted and the army continues its relief activities. Mexican President Jose Lopez Portillo ordered the implementation of a program to help the victims and to relocate them. For this reason, he assigned \$33 million for the agencies that will coordinate the relief operations for the area affected by the eruption. Lopez Portillo will visit the affected region for the second time in 2 weeks today. This region is located on the border between Tabasco and Chiapas states. According to official reports, the toll so far is 20 people killed. The reports issued by the authorities also indicate that 70 people were injured and approximately 150,000 are homeless. According to these reports, the soldiers are involved in guarding the towns abandoned near "El Chichon" to prevent robberies. According to volcano experts involved in research operations in the area, no towns can be reestablished there in a radius of 10 km, where the following towns were located: Nicapa, Francisco Leon, Tanchichal, Xochimilco, Cambac, Tumbac, Vicente Guerrero, Guadalupe Victoria and Guayabal. [Excerpt] [PA120216 Madrid EFE in Spanish 1946 GMT 11 Apr 82]

CSO: 5000/2095



## PROBLEM OF WATER PIRATING EXAMINED

Algiers EL MOUDJAHID in French 18 Mar 82 p 4

[Article by A. Belkhodja: "Hydraulics--How Long the Pillaging?"]

[Text] In a period of drought, strict priorities are ordered --specifically, that the population's drinking-water needs and the needs of agriculture and industry have to be met (agriculture means the areas included in the national production plan, and not marginal areas which are generally leased to a swarm of wheeler-dealers attracted by the easy money to be made off watermelons and muskmelons each season).

For some years now, there has been a phenomenon that is taking on alarming proportions--the illegal pumping from the watercourses that feed the dams, which are intended for supporting sizable land areas and making them productive. This situation involves in particular the wilayas of Tiaret, Saida, Mascara and Mostaganem.

This year, because of the drought that the country is going through, an inter-ministerial circular (Interior, Agriculture, Hydraulics) takes up the problem and sets out the measures to be taken to combat the illegal irrigation being done upstream from the water reservoirs and at the expense of the farming being done in the classified areas. These measures, which we shall review below, are aimed at safeguarding the sizable investment represented by the hydraulic infrastructure and productive capital (livestock and arboriculture). Because of the magnitude of the investments and the objectives set in this area, the illegal pumping for secondary crops, such as watermelons and muskmelons, for example, cannot be ignored.

In a period of drought, strict priorities are ordered--specifically, that the population's drinking-water needs and the needs of agriculture and industry have to be met (agriculture means the areas included in the national production plan, and not marginal areas which are generally leased to a swarm of wheeler-dealers attracted by the easy money to be made of watermelons and muskmelons each season).

During the seasons with heavy precipitation, and after evaluation of the needs and of the reserves, the surplus volume is naturally allocated to the small peasantry. But this policy of social promotion and economic development must not be jeopardized by the practice of leasing, by this same small peasantry, of



of parcels to persons foreign to agriculture. It goes without saying that this situation, which has taken on certain proportions in the last 5 years, does serious harm to agriculture. We note, though, that an interministerial circular stresses that the illegal tapping will have to be considered, criminally, as theft of water. It specifies that in addition to legal proceedings for theft of water and injury to third parties, sanctions will have to be taken--in particular, confiscation of the equipment used and of the agricultural production.

Analogous measures were taken in 1978, in the daïra of Relizane, without achieving any tangible results. "Cops and robbers" has continued to be played since then. Application of the measures announced should be firmer, and a certain hesitation that has sometimes engendered a situation of blockage, a sort of status quo, should be overcome in each of the four wilayas concerned. The "tolerance" noted in one of the wilayas has been seen to spread, which has often resulted in the absence of forceful measures against the illegal irrigation. Nevertheless, the principal victims indisputably remain the wilayas of Mascara and Mostaganem, which cover large areas, especially in the daïras of Mohammadia and Relizane.

The watercourses that feed the main reservoirs are situated in the wilayas of Saida and Tiaret. Oued El Abd, for example, traverses the wilayas of Saida, Tiaret and Mascara. As for "Mina," an important watercourse, it traverses the wilayas of Tiaret, Mascara and Mostaganem.

In application of the central directives, injunctions were served on those living along the "Mina" in the wilaya of Tiaret, informing them that drawing-off of water is henceforth strictly prohibited. In this same wilaya, a commission has been set up and is regularly holding working meetings to develop and apply an action program. This commission groups the Ministry of Justice, the UNPA [National Union of Algerian Peasants], the administration of the wilaya, and the ministries of Agriculture and Hydraulics. Here, rigorous application of the measures ceaselessly urged and suggested by the Hydraulics services is stressed. In addition, and with a concern for effectiveness, initiation of the operation is to be simultaneous everywhere in the four wilayas. To put it simply, if one wilaya applies the directive totally, the others owe it to themselves to act likewise and not to permit things to go along in the same old way and tolerate illegal drawing-off of water for reasons that one is ignorant of.

In the wilaya of Tiaret, those living along Oued El Abd are presently farming some 1,000 hectares of irrigated land. Those of the "Mina" are farming a little more than 400 hectares while Mohammadia, Sig and Relizane cover sizable areas totaling more than 30,000 hectares. A greater interest is consequently taken in these regions. We mention, in this regard, that the irrigation area of the Relizane plain has always drawn its water from the Bakhada dam, built in the wilaya of Tiaret in 1936 and located some 120 kilometers from Relizane.

The Bakhada dam's theoretical capacity is 50 million cubic meters, a capacity that diminishes every year because of silting. At present, the dam holds 32 million cubic meters of water. Apart from the silting, water is pirated upstream and downstream from this important reservoir, which, in addition to irrigation, supplies water to the localities of Mecheraa, SFA [as published], Rahouia and Djilali Ben Amar. The city of Tiaret and its industrial zone will also be supplied from Bakhada, which will supply 600 liters per second.

As is known, the Tiaret region has suffered from low rainfall and drought effects since 1973. This situation has not prevented water drawoffs from proliferating, though. Indeed, there has already been overexploitation of the "Mina" wadi for several years, characterized by anarchic and uncontrollable irrigation by those living along it.

#### The Watermelon Magnates

So long as there was lots of water available, this irrigation was more or less authorized, but to safeguard the irrigable areas, these drawoffs of water were prohibited. However, despite this formal prohibition against pumping, people continued to do it, until in 1978 the "Mina" wadi in the wilaya of Tiaret was completely dried out.

Here too, it should be noted that certain small peasants established in the region are the direct farmers of the irrigated areas only to the extent to which they rent their lands to a category of persons attracted by the profits to be made from speculation in watermelons and muskmelons in particular.

It is obvious that the speculators profit from clandestine use of water to the detriment of the classified areas, which over the years have declined tragically, as was the case with several self-managed arboricultural areas in the daira of Relizane in 1980. Oued El Abd and Oued Al Abtal, upstream from the Fergoug and Bouhanifia dams, were also completely dried up. Is it right simply to wait in the face of a phenomenon that is constantly growing, seriously threatening the classified areas? How long will the pillaging of water be permitted? The damage that the irrigated areas have suffered and are still suffering can now be estimated. Distress signals were sent out in 1979 in Relizane, where several self-managed farming operations are powerlessly witnessing the decline due to a lack of water that is mainly the result of this pillaging.

The year 1979 is a "reference year," for the speculators made a drive toward the water and therefore toward the irrigated lands. Not an inch of land was spared; the earth is battered. The watermelon magnates rake over the land, hardly content with the areas bordering the "Mina" and extending them on either side of the wadi. They rent several parcels at a time and "go all out." In other words, "the big better is the big winner." The most flabbergasting situations have been experienced at Relizane, despite several attempts aimed at limiting the damage caused by proliferation of water drawoffs, a pillaging that accentuates the effects of the drought and lowers the reserves.

The Relizane area is irrigated by the Essaada dam, placed in service in 1978. The capacity of this important facility is on the order of 235 million cubic meters, and such a dam promises great outlooks for farming development and irrigation in the region. For the time being, Essaada is taking over from Bkhada and as of mid-March was storing 50 million cubic meters. It is intended to supply water to the 17,000 hectares of farmland, 10,000 hectares of which are classified.

The present reserves are said to be sufficient to maintain the area--obviously, if they are not "punctured," as has been reported elsewhere.

But downstream from the Essaada dam, the diversion of water by motor-driven pumps whose throbbing is heard day and night is already being deplored.

### Pirate Pumping

When Spring comes, the "Mina" is subjected to abusive exploitation. The Hydraulics administration has always found itself at grips with the pillagers of water. The farming area's needs are estimated daily, with a margin for loss and evaporation, and instructions are then given to the managers of the Essaada dam to release 3,000 liters per second. A few moments after the valves are opened, one notes that 1,000 liters per second "vanish into thin air." They are quite simply sucked off by dozens of pirate pumps connected to pipelines that are quite long. This, of course, is to the detriment of the legitimate recipients. While the effects of the drought are obvious, one cannot, the way we are looking at things, impute lack of water to the tolerated drawoffs, but neither would it be necessary for these drawoffs to have an abusive character [as published].

It should be stressed also that when the rainfall is low or nil, an order of priorities is established, and permission to draw off water upstream and downstream from the dams is no longer granted. Otherwise they would be to the detriment of the water supply for the population, the classified farming areas and industry.

Despite injunctions served on those who live along the wadis, who are only "stand-ins," many cases of repeated offenses are noted. At Relizane, equipment has been confiscated on several occasions; but if it is given back, a complacency is signified that destroys the effect intended by the forceful measures. In March each year, the activity on both banks of the "Mina" becomes feverish.

The activity is less intense this year, we are told. Preparations are being made nevertheless, as is customary, before the soon-to-come startup. In the daïra of Relizane, all arrangements have been made to counter a phenomenon that is lasting too long, and also to remove the obstacles that prevent the regulations in force from achieving their purpose, and finally to put an end to the very cunning behavior of the offenders.

In several cases, the pumps are loaded onto and operated from vehicles (trucks or vans). This mobility keeps them from being caught in the act, for at the approach of a patrol, pumping is stopped and they go off peaceably. Others push their effort and investment to the point of installing big pumping motors on cliffs, inaccessible and obviously requiring suitable means and equipment for confiscation of them. Others, finally, lay full-fledged irrigation systems, the cost of which is beyond the capacity of the small peasant who owns the parcel and which amounts to a disguised purchase of the parcel, which produces huge profits from the growing of watermelons and muskmelons.

### Some Measures--But...

At Relizane, no water-drawoff permits were issued at the beginning of this March. A commission set up in November 1981, under the chairmanship of the daïra chief, is responsible for managing the resources of the "Mina." Other commissions are operating at the commune level.

Forty kilometers from Relizane, at Mohammadia (wilaya of Mascara), the water shortage is felt very sharply. Rainfall was not abundant this season. For the plain of Habra, there is not just one misfortune. The salinity of the soils--a phenomenon that has persisted for several years--is devouring the roots, and salt is being deposited on the surface. Because of lack of drainage, very little water serves for irrigation and therefore for the survival of arboriculture. The cleaning of the surfaces affected by the salinity is proving difficult, precisely because of the lack of water.

In this daira, a large-scale operation is being carried out and is proceeding at a satisfactory pace. It involves the reconditioning of an initial area of 10,000 ha [hectares]. The project involves the drains' being put back into service and the plain's finally being rid of the waters with high salt content.

Until 1977, Mohammadia had no serious problems with irrigation, but since then, the reserves have been dropping. In 1978, for example, the area received 30 million cubic meters of water, corresponding to 40 percent of the needs. In 1979 and 1980, only 50 percent of the needs for irrigating some 12,000 ha were met.

The outcome obviously depends on rainfall, to make it possible, on the one hand, to build up the water reserves, and on the other, to redevelop the plain. Thanks to elimination of the salt, this year in the daira of Mohammadia, in view of the scarcity of water and the imperative restrictions in irrigation, several market-garden operations have faded out [as published]. The production plan seems to be disturbed both at the level of the socialist-sector and Agrarian-Revolution farming operations and at the private-sector level. Thus, 70 to 80 percent of the artichoke plantings for which investments were granted have been wiped out. This is also why all irrigation for crops of this type has been suspended, with a view to preserving the classified and equipped areas involving citrus and oil-producing arboriculture in particular. These constitute further reasons for making a responsible choice by putting an end to the draw-offs of water for secondary crops--specifically, watermelon and muskmelon, which require large quantities of water. We have been told that parcels used several times running for watermelon-growing produce poorly. That is why certain private parties do veritable prospecting of this kind to find virgin lands, precisely because they are fertile. The speculators are already in the field, but they are acting discreetly, not to say in the shadows.

#### Silting of the Dams

The "Mina," whose source is in the wilaya of Tiaret, is exploited both upstream and downstream from the Bakhada and Essaada Bakhada [as published] dams, which are situated within the territorial limits of the wilaya of Tiaret. It constitutes what could be called the lifeline of the Relizane plain until the Saasa dam builds up sufficient reserves over the years, and depending on the clemency of nature. Last year, for example, there was a "discharge" of 20 million cubic meters from Bakhada to the benefit of Essaada. Did this volume arrive safely? Only the pirate pumpers can say.

The Bouhanifia dam, intended mainly for arboriculture, constitutes the principal reservoir for irrigation of the Mohammadia area. Its initial content was



on the order of 75 million cubic meters, but it has been reduced to 50 million cubic meters by silting. As for the Fergoug dam, it offers 10 million cubic meters available, its initial capacity having been 17 million. Silting is the area's No 1 problem.

Following the recent precipitation, the two dams are reported to contain, as of mid-March, 27 million cubic meters (capacities that are well below the needs of the population, agriculture and industry). Because of this situation, irrigation has been subjected to sharp restrictions that affect 84 CAPRA [Agricultural Production Cooperatives of the Agrarian Revolution], 7 CAPAM [War Veterans Agricultural Production Cooperatives], and a multitude of small peasants. As this Spring begins, only 16 million cubic meters of water are available in reserves, whereas the needs are estimated at 76 million. The shortfall is enormous. Orchards require 6 irrigations per year, each of 5,000 to 6,000 cubic meters per hectare. But in recent times it has been necessary to limit them to only 1 or 2 irrigations--3,000 cubic meters of water per year per farm, which is very slim. If these restrictions are imposed downstream from the reservoirs, one should not be passive about the pumping being done upstream from the reservoirs. Pirate pumping? Authorized pumping, the subdivision chief of Hydraulics of Mohammadia corrects us, with a hint of irony, explaining that these officially prohibited but discreetly tolerated drawoffs of water diminish the reserves.

Indeed, the clandestine or semiclandestine pumpings limit the possibilities of safeguarding the maintenance of the classified areas. At Mohammadia, drawoffs of water downstream from the dams have just been prohibited by decree. It is up to the wilayas of Saida and Tiaret to coordinate action to prevent, or at least limit, the harm done.

In the wilaya of Mascara, a dam is under construction--Ouzet. It will have a holding capacity of 100 million cubic meters. The Habra plain is counting a great deal on this facility, which will not only compensate for the chronic deficit but will also open up broad possibilities for development and food supply.

Last year, 398 hectares were assigned to authorized irrigation, from the "Mina," in the wilaya of Tiaret. As for the pirate branchings, they watered 207 ha farmed by two farming estates, a few CAPRA's and 83 private parties, the majority of whom are actually lessees of parcels who have come from different places to "conquer the wadi," to promote the growing of watermelons and muskmelons.

The pumping was done at will, since it is established that crops of this type require abundant water--i.e., an average of 10,00 [as published] cubic meters per hectare.

Oued El Abd, whose source is in the wilaya of Saida, traverses a part of the wilaya of Tiaret and joins the "Mina" at Oued El Abtal in the wilaya of Mascara. A thousand hectares are farmed and irrigated by this watercourse. Last year the administration limited the authorized irrigation, having found itself faced with a fait accompli because the farmers had made preparations. But were all means of control used for making sure of the application of such a measure?

## Concerted and Simultaneous Action

At Saida, the wadi of the same name and Oued El Abd for an appreciable reserve for feeding the dams of Mohammadia and Relizane. In this wilaya, we are told that the pirate pumpings are not so numerous as in the other wilayas, notably along the "Mina" wadi. Nevertheless, injunctions have been issued, formally prohibiting the installation of water take-offs. A watercourse police force is ready for action, assigned to patrol the watercourses and apply the measures set out in the interministerial circular--measures that will be mirrored in a wilaya decree being prepared.

In this wilaya, people have become aware of the problem. Indeed, it is considered that in past years water drawoffs have been done anarchically and in a disorderly manner and have gone beyond the limits of tolerance. This situation could not go on if strict measures were taken simultaneously by the officials of the various wilayas concerned. It is noted that each wilaya that experiences or suffers this phenomenon has been operating exclusively on its own within its territorial limits, without being concerned about its neighbor's opinion. We are told, however, that the situation is now tending to improve.

This year, indeed, there has been greater harmonization of the actions of the wilayas concerned. The meeting of the directors of hydraulics of the western part of the country, held in Oran at the end of 1981, has been followed by a series of meetings organized at the level of the dairas and wilayas affected by the problem. The most recent one was on 2 March, but unfortunately it was not possible to bring together all the agriculture and hydraulics officials of the wilayas of Mostaganem, Mascara, Tiaret and Saida. This cycle of meetings has the task of bringing things up to date in the matter of management of hydraulic resources and of setting precisely the quotas to be drawn off for drinking-water supply and for meeting the needs of the other sectors.

The merit of this coordination is first of all that it makes it possible to join efforts in order to carry out simultaneous action--action that will be decisive in application of the measures decreed against the water drawoffs considered illegal.

The restricted exploitation of the "Mina," the area's source of nourishment for several consecutive years, is an example that amply satisfies us with regard to the harm caused. It is clear that the measures decreed do not run counter to promotion of the small peasantry but rather counter to the speculators, these magnates of the watermelon and the muskmelon, this class of persons who profit from the precariousness of the small peasants' resources in order to obtain parcels on a lease basis. It is a matter of eliminating a phenomenon characterized by the search for base profit to the detriment of the national interest and of the small peasantry, who profit only from the morsels of paternalism thrown to them by the parasites.

11267  
CSO: 5000/5011

FINANCE MINISTER PROMISES AID FOR DROUGHT

Johannesburg THE CITIZEN in English 25 Mar 82 p 14

[Text] Steps to provide drought relief would be taken by the Government as soon as the Jacobs Committee investigating the situation had made its report, Mr Horwood said.

After last year's bountiful crops and generally favourable agricultural conditions, South Africa was now experiencing increasingly serious drought conditions in certain areas, he said.

As in the case with producers in other sectors of the economy, the farming community was faced with rising input costs, including the high cost of money.

Apart from hardship to farmers affected, this combination of factors would adversely affect the country's food production potential--at least in the short run--and that was a serious matter for the country as a whole.

Mr Horwood said that he and the Minister of Agriculture and Fisheries and other colleagues had been present when the president of the SAAU had called on the Prime Minister recently to report the latest position.

"And I can attest to the constructive and sympathetic discussions which took place," he said.

"The Government lost no time in referring the matter to the Jacobs Committee for urgent study and report.

"As soon as the committee's recommendations are received, steps will be taken for the relief of what is plainly a serious situation, subject only to the financial means at the Government's disposal.

"Since the extent of financial assistance required still needs to be determined, funds for this purpose are not provided for in the estimates, but will, in any case, be made available at the right time," said Mr Horwood.-- Sapa.

CSO: 5000/5713

EVACUATION OF CATTLE FROM DROUGHT-STRICKEN PROVINCES REPORTED

Salisbury THE HERALD in English 20 Mar 82 p 1

[Text] Bulawayo--The Cold Storage Commission has transported about 10,000 cattle by train from Matabeleland and Victoria provinces to Mashonaland since the exercise to move livestock from drought-stricken areas began about four weeks ago.

A CSC spokesman said in Bulawayo yesterday that at least 600 cattle were moved at a time from the two provinces to various parts of Mashonaland.

Some were sent to abattoirs, some to feed-lots and others to farms where they were to remain until the next rainy season when it was hoped they would be brought back.

He said the figure did not reflect the complete picture because some commercial farmers had made private arrangements with Mashonaland farmers to move their cattle.

The official could not say exactly how many more cattle the CSC would move to Mashonaland. It was "quite probable" that commercial farmers would sell 10,000 before the exercise was over and the communal land owners "something like 70,000," bringing the total to about 90,000 to be moved by the CSC alone.

Asked if the number of cattle the CSC will have because of the drought would affect the price of meat, the spokesman said: "The price we are paying to commercial farmers is being renegotiated. The Government will probably say something about it next month.

"We are always looking at the supply and demand aspect of the beef industry to maintain a constant supply. It is most likely that butchers will buy cattle cheaper shortly because of the large supply, but as the year draws towards the end, there is likely to be a shortage of cattle, and the price of beef may rise again."

He said the CSC's priority was the local market, which must always be well-supplied.

CSO: 5000/5713



FARMERS URGED TO SELL CATTLE BEFORE STARVATION

Salisbury THE HERALD in English 23 Mar 82 p 3

[Text] The president of the National Farmers' Association of Zimbabwe, Mr Robinson Gapara, has appealed to farmers to sell older cattle before they die because of grass and water shortages.

Speaking at a field day at Pasipamire village near Enkeldoorn yesterday, he said: "Places like Ndanga, Bikita, Nuanetsi, Belingwe, Shabani and other areas of Matabeleland have cattle which are already dying."

He also appealed to farmers to form co-operatives. "By working together you will probably triple your present produce and it will be easier for you to get more aid."

Speaking at the same village, the co-ordinator of literacy, Mr Stephen Karume, said he would visit the district's 18 wards recruiting voluntary workers to teach adult education.

Training

The teachers, drawn from school-leavers, nurses, teachers, extension officers, the police and the general public, would be sent on a five-day training course.

Mr Karume would also urge people of the district to form study and project groups. Project groups would be taught farming, cooking, poultry-keeping, carpentry, building and gardening.

Speaking at Nyahunzi, near Sipolilo at the weekend, an Agritex official for the area, Mr Moses Chigariro said commercial and peasant farmers should increase their agricultural output to create jobs.

Mr Chigariro has visited a cotton-growing demonstration at the Gatooma Cotton Research Station, where he saw 10 varieties of cotton which had been grown on one hectare of land.--ZIS.

CSO: 5000/5713

FISHERMEN PROTEST DUMPING OF CHEMICAL WASTE IN ELBE

Hamburg DER SPIEGEL in German 15 Mar 82 pp 86, 88, 89

[Article: "By the Pants"]

[Text] Elbe River fishermen protest officially authorized pollution of the environment: Dow Chemical Works is allowed to put 6 tons of poison into the Elbe every day.

At the end of last year officials of the Kiel Ministry of Agriculture drafted a 15-page paper for their boss Guenter Flessner in which they described--"confidentially"--"various kinds of polluting of the Elbe River."

The internal document was delivered not only to the addressee. In a round-about manner the paper was slipped to those who are hardest hit by the river pollution: the last fishermen on the Elbe River.

What they found to read struck them as sensational: The Dow Chemical Works in Stade on the Lower Saxony bank of the lower Elbe is putting "about 2 tons of chlorinated hydrocarbons per day" into the river, and according to the notice of approval it may pump as much as 6 tons per day.

Last week for 29 hours the fishermen blockaded the chemical company's ship landings with 9 cutters as a protest against the officially authorized flow of poison. Then, according to the spokesman Heinz Oestmann, they finally had Ernst Albrecht (CDU), the responsible minister president, "by the pants": Albrecht agreed to negotiate with the fishermen prior to the election in Lower Saxony next Sunday.

The anti-Dow demonstration is the fourth sensational action by which the Elbe fishermen are reacting to the progressive pollution of the river, which is increasingly pressing them to give up their occupation. When last year officials issued a prohibition on the sale of eels from the Elbe, which were contaminated with mercury, the fishermen twice blocked ship traffic on the Elbe with their cutters. In May approximately 50,000 environmentalists came to the largest protest action to date against the "stinking sewage canal"--motto: "Save the Elbe, now!"

But it is possibly too late for that. Because of embanking and deepening, industrial settlements and the introduction of waste waters from factories and

communities in East and West Germany, the river, which around 1900 was still among the bodies of water in Europe richest in fish, has become a swamp.

According to the Lower Saxony Ministry of Agriculture "the Elbe is the main receiving stream for Central Europe." While in 1920 about 1,200 fishery vessels provided 120,000 tons of fish from the Elbe to Hamburg, now just a dozen professional fishermen catch the up to 200 tons per year--primarily contaminated specimens which may not be sold because of the high toxicant level.

According to the most recent studies, 46 percent of the Elbe eels have more highly toxic mercury than is permitted by German health guidelines. Some 91 percent of the eels and 100 percent of all other kinds of fish, like perch, bream, roach, zander and smelt, show inadmissably high proportions of the pesticides hexachlorocyclohexane (HCH) and hexachlorbenzene (HCB). Environmental experts were alarmed mainly by the fact that the highest values for HCH and HCB (0.5 milligrams per kg of fish fat) have been exceeded by up to 10 times and more in 27 and 93 percent of all fish--an unprecedented environmental policy scandal, especially since these poisons are among the extremely dangerous chlorinated hydrocarbons which do not decompose for years.

The insecticide HCH and the plant pesticide HCB have been repeatedly identified in mother's milk also, transported via the food chain from the smallest organism to man. The substances, which accumulate in body fat, are under strong suspicion of damaging the liver and the nervous system, of causing cancer and deformities among newborns.

Since the confidential paper from Kiel surfaced, it is clear to the fishermen who are among the main parties guilty of poisoning the Elbe: the management of the factory in Stade, a subsidiary of the American poison producer (and occasional producer of napalm) Dow Chemical, and the Land politicians in Hannover who at the beginning of the 1970's were anxious for industrial plant at almost any price, paid scarcely any attention to environmental protection and since then have neglected to adapt the requirements of waste water quality to the level of what is technically possible.

Dow was located in Stade before the area was off limits as an industrial region and was allowed to build without a permit. The enterprise in fact was given the order to build a biological clarification plant, but it was not finished until 1 and one-half years after the start of production and even then continued to leave a great deal of dangerous filth in the waste water. The then chief construction official, Buenter Feist, complained to the Stade government president, that questions of environmental protection had simply "been mostly on the fringe of the negotiations for locating industry, in spite of all the assurances by the politicians."

Thus, it is no surprise that repeatedly explosions in the factory, in which several people were wounded, and countless outbreaks of poisonous gas, after which the Elbe occasionally had to be closed, again and again brought the company into discredit and the people living nearby into danger. Meanwhile the 1979 authorization, which has now been made public, resulted in a massive protest.

It is stated there that "chlorinated hydrocarbons on principle must not be introduced into the main canal"--unless there is no other way: Then, "the permissible daily load is limited to 6 tons per day." In the notice maximum amounts are spelled out for 31 different chlorinated hydrocarbons, including the pesticide HCB (0.05 milligrams per liter).

Of course, Dow, as the company promptly maintained, did not fully utilize the permitted amount of waste. In 1980, for example, 1 ton of chlorinated hydrocarbons was pumped into the Elbe each day, in 1981 just one-half ton per day. According to the government the chemical works "has received strict orders in respect to waste water purification," which "are in accordance with the level of technology."

But meanwhile for experts at the Berlin federal environmental protection office the "level of technology" is taken to mean the virtually total "removal of chlorinated hydrocarbons from waste water and exhaust gas;" a "degree of waste removal" of "over 99 percent" can be attained. Prerequisite: technical installations which Dow does not have--and which officials have never made a condition for the conglomerate.

Dow critic Oestmann fears that such an environmental policy will result in the total end of fishing not only on the Elbe. If there is no change, he said, "in 3 years the crab catchers along the coast will be affected and in 10 years all fishing in the North Sea."

12124

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FEDERAL REPUBLIC OF GERMANY

LAND ENVIRONMENT MINISTER PREDICTS ACID RAIN FROM BEXBACH PLANT

Hamburg DER SPIEGEL in German 22 March 82 pp 52, 54

[Article: "Danger from Bexbach"]

[Text] Sulfurous waste gas from a Saar power plant, which according to experts will pollute the Pfaelzer Wald [Palatinate Forest], is poisoning the atmosphere between the CDU-led governments in Mainz and Saarbruecken.

Whenever Rudi Geil, Rhineland-Palatinate minister for the environment, is asked about the biggest construction site of the adjoining Saarland, he shows frustration: "I am deeply disappointed."

Geil's mood has soured, because the Saarbruecken State Government wants to make the Rhineland-Palatinate people taste acid: Approximately 8,000 tons of sulfur dioxide per year from the smoke stacks of the Bexbach coal-fired power plant.

The Mainz Government is embittered, because even though the 750-megawatt plant near the two states' common border, which has cost DM 1.1 billion and which is to be put in operation in the fall of 1983, will be equipped with a 240-meter smoke stack, it will lack the latest desulfurization technology.

Experts fear that whenever there is a westerly wind, the stinking waste gas from Bexbach will be blown into the Hunsrueck forests and the Palatinate Forest and will come down in these regions, which are anyway highly endangered, in the form of acid rain. If this comes to pass, the "German Forest Protection Association" predicts for these regions large-scale tree destruction such as has been recorded for a long time in many other regions of Central Europe (SPIEGEL series, No 47-49, 1981).

The waste gases emitted by the 216 West German coal and mixed fuel power plants, barely a dozen of which are equipped with modern filter installations, are suspected of being a key factor in a situation, where in Central Europe all fir-trees, nearly 50 percent of the spruces, 65 percent of the pine-trees and--according to the information transmitted by forestry experts at a technical conference last week--all beech-trees in North Bavaria and in the Spessart have suffered damage.

Since a large part of the toxic gases that everywhere in the northern hemisphere

are threatening the forests is blown in from the respective neighboring country, the acid rain has everywhere given rise to diplomatic action, e.g. between Montreal and Washington, Stockholm and Bonn, East-Berlin and Prague.

For the first time, the sulfur export has made clash two CDU-led federal states: Instead of the much-quoted interstate friendship, a strained atmosphere has been prevailing in the last few weeks between the Christian-Democratic government in Mainz and the CDU/FDP cabinet in Saarbruecken.

State Environment Minister Geil attacked in an unusually sharp manner Saarland's minister for economics, Werner Klumpp (FDP), who is responsible for the licensing of the power plant. In writing, Geil raised "strong objections" against the "regrettable decision," which he wants to bring up for discussion next Tuesday at a joint session of the two state governments.

With Klumpp's consent, the licensing agency has as early as 1978 permitted the plant owners to emit in Bexbach 850 milligrams of sulfur dioxide per cubic meter of waste gas. And it is this permit that the power plant operators are presently adducing in support of their position; as a result, only 72 percent of the fumes are to be desulfurized in a so-called lime washing installation, while the remaining 28 percent will be blown into the air with the approval of the authorities.

Thus the Bexbach Power Plant, whose furnaces have an hourly capacity of 255 tons of washed pit coal, will pollute the environment at a rate of approximately 2 tons of sulfur dioxide per hour of operation. The effects of acid rain on the Hunsrueck Mountains have been described in a study by the Mainz geo-ecologist Manfred Krieter:

"In the Hunsrueck Mountains, the acid rain and the aluminum and heavy metal deposits mobilized in the soil by the rain will in their entirety seep--via the groundwater--into the spring water. It is only a question of time at what point after the leath of the surface waters the groundwater can no longer be used as drinking water on account of toxicological considerations."

Consequently, the Rhineland-Palatinate Government has urged its Saarland neighbors at least to reduce the emission of toxic waste gases to 650 milligrams per cubic meter. This waste gas limitation for coal-fired power plants exceeding 175 megawatts was agreed upon by the federal and state environment ministers on 8 February 1980.

Actually, one could accomplish still more. Even FDP-Klumpp concedes that a reduction of the sulfur content to 400 milligrams is "technically feasible." And Saarland's Environment Minister Guenther Schacht predicts: "In a few years, we will be arguing about 200 or 100 milligrams."

In fact, even today coal can be converted into electric power without any concomitant air pollution. Employing the so-called centrifugal stratification process, one can even construct power plants without smoke stacks; in such plants, the sulfur is converted by means of lime into calcium sulfate.

The centrifugal stratification process has been known for 50 years; due to lack of demand, however, it has only now reached the production stage. Consequently, a power plant of this type costs much more than a conventional plant--the main reason



for the reserve the industrial sector has shown so far.

Of all places, it is the Saarland town of Voelklingen--a mere 35 kilometers off Bexbach--that presently is building--at a cost of DM 500 million--a centrifugal stratification power plant without smoke stack--the second such plant built in the Federal Republic. To be sure: The Federal Ministry for Research and Technology carries one-third of the construction costs.

Without the subsidy, the test project would be unprofitable, and for Saarland's Economics Minister Klumpp profitability takes precedence over environmental protection. For financial reasons, the alert politician, who in the early summer will give up his ministerial office in exchange for the financially more lucrative position of president of the Saarland Savings and Clearing Association (annual salary: approximately DM 240,000), is obstructing more effective environmental protection in Bexbach.

Klumpp's argument: If the toxic gas emission is reduced by as little as 200 milligrams--from 350 to 650 milligrams--the cost of the desulfurization installation will increase by DM 20 million, with an additional expense of DM 8 million per year. Says Klumpp: "Economically not justifiable."

Klumpp also points to the "competition pressure" exerted by the less expensive nuclear power from France--a warning that falls on fertile soil in the structurally weak and crisis-ridden Saarland with its high unemployment rate (9.6 percent). The construction of the Bexbach Power Plant is to safeguard 1,000 jobs in the mining industry, with 200 new jobs created in the power plant.

In Rhineland-Palatinate the politicians of the CDU and the SPD--ordinarily at odds with each other--have now formed a "strange alliance" (FRANKFURTER ALLGEMEINE ZEITUNG) against the government of the neighboring state: For example, Willi Rothley, district chairman of the Palatinate's Social Democrats, praises the "unequivocal stand" of CDU Environment Minister Geil and deplores Klumpp's "unbearable" sulfur policy.

The Federal Government, too, is involved in the environmental dispute on the Saar: It owns 74 percent of the Saarbergwerke AG [Saar Mining Works, Inc.], the enterprise in charge of the power plant project. If the plant's future operators keep defending the obsolete desulfurization installation, the Bonn shareholders will be confronted with difficult problems: Regarding the licensing of new plants, the guidelines concerning the Federal Law on Protection Against Industrial Emission of Noxious Substances express call for the "latest state of engineering."

Environmental protection activists are concerned about the possibility that the privately owned industry could follow the bad example of Bexbach and interpret the regulations concerning protection against industrial emission of noxious substances as leniently as the Federal Government. "It makes a terrible impression," laments Kurt Rucker, president of the German Forest Protection Association in Rhineland-Palatinate, "when the state gives itself better terms."

The forest protectors also point out that sulfurous rain is harmful not only to the forests, but also to people's health: According to a study presented in 1977 by more than 200 U.S. scientists, the life expectancy of people living near coal-fired power plants is reduced by 1 to 15 years; in the United States alone, over 21,000

of such individuals die a premature death. The most frequent cause of death: Lung damage produced by sulfur dioxide, which--in combination with other noxious substances--is also suspected of causing cancer.

It certainly is no accident that in Saarland's high-density industrial region, where every day tons of toxic substances are blown into the air, more people presently die of lung cancer than elsewhere. "In the Federal Republic, we have a big lead," concedes Alban Schloz of Saarland's Ministry for Health.

In spite of all health- and environment policy-related considerations, Heinz-Guenter Wrede, spokesman of the Saarbergwerke AG, holds that intensification of air protection in Bexbach will be practicable only if others carry the "disproportionately high costs." Should that come to pass, scoffs Wrede, certain waste materials could be "shot to the moon."

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## GREECE

### BRIEFS

EEC ANTI-POLLUTION FINANCING--The EEC will finance (possibly up to 30,000,000 drachmas) studies for the fight against pollution in Athens. This is the first time that the EEC is participating in Greece in environmental protection programs, especially in the area of the capital. Negotiations between Minister of Urban Planning, Housing and Environment Tritsis and a delegation from the EEC's general directorate for the environment ended yesterday. A statement from the above Ministry announces that: "The country's environmental problems were discussed during the meeting and EEC financial participation in these programs has been agreed to in principle. The Ministry will submit the Greek government's proposals to the EEC by the Middle of April. The representatives of the European Community's Commission expressed their interest in the EEC's priority financial participation in the application of anti-pollution programs in Athens." [Text] [Athens TO VIMA in Greek 24 Mar 82 p 1]

CSO: 5000/5323

ENVIRONMENT AGENCY CHIEF: NEW PLAN BEING PREPARED

Stockholm DAGENS NYHETER in Swedish 26 Mar 82 p 20

[Article by Peter Sandberg: "Environment Chief Says Problems Are Worse, New Environment Plan on the Way"]

[Text] Goteborg--"What we are working with today are problems resulting from decisions made in the 50's and 60's. The new problems which crop up tend to be worse and worse, and therefore the need for planning and foresight is greater than ever. In a couple of months we will present a program in which we will prioritize five areas," said Environment Protection Board chief Valfrid Paulsson in Goteborg on Thursday.

Valfrid Paulsson spoke to a seminar arranged by Goteborg's Social Democratic Party to honor the old local politician Torsten Henriksson, who worked for a long time with environmental affairs in the offices of the Environment Protection Board.

The problem areas which Valfrid Paulsson says are going to be prioritized are:

- acidification of earth and water,
- automobile exhaust and noise in the cities,
- chemicals dangerous to health and the environment,
- refuse and refuse disposal,
- depletion of natural areas.

Valfrid Paulsson said that environment protection is not a question of "satisfying friends of the environment." The interests of environment protection must be considered equal to other social interests.

Conflict

He said that it is not right to avoid conflict, because all activity involves conflict. As a typical example he spoke of the forest.

"Now and in the future, the forest is one of our most important raw material sources, and we have a social goal that the forest will give high production

and be profitable. At the same time, however, the forest should be kept for recreational purposes. We want to avoid the use of coercion, and yet we order the forest owners to keep after leaf disease. We commit ourselves internationally to protect the wetlands, and yet we contribute to construction of drainage ditches," said Valfrid Paulsson.

"There are a number of concrete recommendations to improve our possibilities for supporting the environment. But that does not mean that we have an environment protection policy which is generally accepted.

"We lack a politically decided and generally accepted goal for the use of the forests and for environmental protection, and we will never have such a thing. It has to be decided whether it will be your ox or mine which will be sacrificed," said Valfrid Paulsson.

"In the same way, in area after area there are conflicts arising in the forests," he said. "We have to put up with this because of the ambivalence of the politicians (approving and disapproving of something at the same time) on these issues."

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## ENVIRONMENT GROUP ASKS TOUGHER RULES ON SULPHUR EMISSIONS

Stockholm DAGENS NYHETER in Swedish 26 Mar 82 p 20

[Text] One-third of the sulphur pollution which Sweden emits annually lands on Swedish soil. The remainder, about 200,000 tons, is "exported" abroad. Therefore there is reason to reduce Swedish sulphur emissions, according to the Swedish Society for the Protection of Nature in its program against pollution of nature.

This is one of our greatest environmental problems, according to the organization, which says that 18,000 Swedish lakes have already been damaged.

Primarily it is the use of fuel oil which increases pollution. Also, automobiles and new types of fertilizer cause a more acid environment.

In 1976 the Riksdag decided that sulphur emissions should be reduced by more than one-third. The first step has been a reduction of the sulphur content of fuel oil.

The goal is to have emissions which are the same sulphur intensity as in the 50's.

The Society for the Protection of Nature doubts whether this reduction is sufficient. Furthermore, most of the sulphur comes from abroad. A total of almost 400,000 tons of sulphur lands on Sweden each year.

The conclusion is that Sweden must increase its efforts to solve the problem.

Earlier investments in cleansing equipment, investment in energy management in homes, equipping all oil burners (not just the new ones) with smoke cleaning equipment, tax on high-sulphur oil, prohibition of coal burning in private furnaces and small heaters are some of the demands.

### Increased Liming

Liming must increase, or alternatively agriculture must return to nitrate fertilizer which was mainly used before, and which does not acidify as much.

As to forestry, the pollution from forest fertilizer should not be a problem. The amount of deciduous trees should be increased, since these have the ability to reduce acidity.

On the question of forestry, the Society for the Protection of Nature comes into direct conflict with forest management, which fertilizes to increase growth, and which furthermore does not like deciduous trees because they tend to slow the growth of the economically better coniferous trees.

9287

CSO: 5000/2086

GOVERNMENT PROPOSES NEW RULES FOR BURNING OF COAL

Stockholm DAGENS NYHETER in Swedish 27 Mar 82 p 7

[Article by Thomas Michelsen: "Acids to be Reduced, New Rules Recommended for Burning Coal"]

[Text] Now a new round is starting in the fight against acidification--Sweden's greatest environmental threat. The government recommends strict measures against sulphur in the smoke from coal-fired heating plants. Part of the costs for cleaning the smoke gases will be covered by increasing the cost of oil.

Furthermore, the grants for liming acid lakes will be increased, and this money will come from the oil account. Oil prices will increase by a total of 15 kronor per cubic meter, which will be the environmental tax on oil.

The government's acid proposal has already been criticized from two quarters. The coal interests, represented by the Swedish Coal Consortium, claim that the proposition places an extra cost of one billion per year on tenants. And, say the coal people, the environmental effect is barely noticeable.

The friends of the environment in the Society for the Protection of Nature are criticizing the government from the other side for not going far enough with its measures against sulphur emissions in Sweden. The emissions should, by 1990, be reduced to one-half of that which the government approves of, says the society.

Unexplored

Acidification is a global threat to the environment which was detected very late. The decisive discoveries were first made in Sweden in the 60's.

The most publicized destruction of the environment was the killing of the fish in the lakes. Today 18,000 of Sweden's 85,000 lakes have been found to be obviously acidified, and 3,000 more are threatened until 1990. The fish in one-tenth of Sweden's lake area are affected.

But acid has other, less discussed and probably more serious, results for the health of mankind, for ground water, for growth of the forests and for agricultural harvests.

But large segments of this rapidly growing environmental threat are still unexplored.

#### More Acid

Acidification is related to industrialization, to the continuously growing combustion of coal and oil. Since industrialization began the rain over southwest Gotaland has become 10 times more acid.

Acid rain clouds blow from country to country. An average of one-fourth of the sulphur which rains down over Sweden is of Swedish origin. Three-fourths blow in from Western Europe and England's industrial areas. In return, Sweden exports a large part of its sulphur emissions to Finland and the Soviet Union.

Acidification has therefore been a continuous theme at international environmental conferences during the 70's. It will be the main topic at the follow-up conference after the UN environmental conference which will be held in Stockholm in the summer.

Sweden is one of the countries which discovered acidification earliest and hardest, since our lime-poor soil gave so little protection against acid rain.

But in recent years West Germany has become concerned with the difficult consequences of sulphur rain. Large parts of the West German spruce forest have been seriously damaged by acid rain. It is probable that the aluminum in the soil, which is released by the acid rain, damages the roots.

Acidification has many causes, and the most important is precipitation of sulphur from the combustion of coal and oil. But the pollution which has grown the fastest in recent years in Sweden is the emission of nitric oxides, which come mainly from automobile exhaust gases.

#### Difficult Consequences

But earth and ground water are also acidified through spreading acid fertilizer in agriculture and forestry.

The new methods of forestry involving use of the entire tree, even the top and the branches, is going to increase the acid in the forest earth.

The government's proposal is going to require the larger coal-fired plants to clean the sulphur from their smoke gases. National contributions will be paid for the cleaning equipment. But this involves only large coal furnaces from 500-600 megawatts and above.



## Medicine

The government's proposal for smaller heating plants contains an easing in relation to existing sulphur laws. They are allowed to emit more sulphur than is permitted today, until 1987. It is considered today to be impossible to buy coal with sufficiently low sulphur content.

The national contribution to liming of the lakes increases from 75 to 85 percent of the cost. But, says the minister of agriculture, liming is no alternative to reduced emissions. Liming is only a medicine which works temporarily and occasionally.

9287

CSO: 5000/2086

## MEASURES FOR COMBATting ANKARA AIR POLLUTION PROPOSED

Istanbul MILLIYET in Turkish 18 Jan 82 p 2

[Article by Master Engineer Fethi Komurcuoglu, former president of Fuels Office]

[Text] Air pollution in Ankara reached such dire proportions recently that compulsory measures were taken. Nevertheless, it is impossible to say that its ill effects on human health have been adequately prevented. This makes it worthwhile to examine the topic, propose radical solutions and inform the public.

It is necessary to stress that air pollution in Turkey is not unique to Ankara alone, but applies as well to Istanbul and our other industrialized cities.

Total lack of air pollution is impossible. Therefore, it is necessary to determine the level at which air pollution must be kept, that is, the maximum acceptable levels of the air pollutants--sulfur oxides, hydrocarbons, carbon monoxide, photochemical oxidants, nitrogen oxides, fluorides and particulates--and to formulate and legislate standards specifying the conditions relevant to sources of pollution.

Thought should be given to three areas of control.

- A. Control of industrial establishments.
- B. Control of motor vehicles.
- C. Control of fuels, related facilities and equipment.

A. Control of industrial establishments will begin with the process of industrial planning and identifying industrial zones. Special industrial zones should be designated in the cities and areas where natural conditions prevent dispersal and purification of polluted air, such as Ankara, for instance. The latest technical developments to reduce to a minimum the pollutants discharged into the air by factories should be envisaged within the discipline of projects. At this stage, it is a categorical necessity to prevent discharge into the air of toxic pollutants such as cadmium, beryllium and asbestos, which have a directly fatal effect on human health.

It is very important that urban industrial zones be designated in such a way as to allow prevailing winds to carry smokestack emissions away from residential areas. (For example, I think the organized industrial zone being developed in the Cigli district of Izmir should be reexamined from this standpoint.)

#### Motor Vehicle Control

B. Motor vehicle control includes control of hydrocarbons discharged from the crankcase, and hydrocarbons, carbon monoxide and other gas particulates discharged in the exhaust. The former should be totally prevented and exhaust gases should be kept below a certain limit. These controls should absolutely take place in traffic inspections.

The second issue here is the effect and control of fuel (petroleum) and its additives. For example, air pollution caused by tetraethyl lead found in gasoline occurs at no negligible level and the gasoline used should contain a minimum of it.

C. It would be appropriate to look at this area as control of the facilities where fuels are used and of the characteristics of equipment and fuels. Electricity-producing stations may be considered facilities and central heating, air conditioning, stoves, bakeries, etc. as equipment. It is necessary that the fuels to be used contain a minimum of pollutants or be free of them.

The sulfur and nitrogen oxides are the hardest to control. In fact, South African oils which contain very little sulfur are very expensive. The same holds true for coal.

Natural gas is the most suitable fuel as to low sulfur content and efficient burning.

Cleansing petroleum and coal of these pollutants is a very expensive process and it is agreed that the world has not been able to afford it to date. For this reason and bearing in mind the complex and varied aspects of air pollution, I think it would be optimistic to expect Ankara's air pollution problem to be solved by "lignites," the so-called "smokeless coal" being developed jointly by Turkey and Germany.

#### Natural Conditions in Ankara

Natural conditions in Ankara are very unfavorable. The city is becoming uninhabitable because the lack of air currents allows pollutants to remain in the air for long periods of time and their accumulation brings pollution to high levels. Housing has been and is being built without taking air pollution into account as regards location and urban planning and without taking the necessary measures. Industry has also been located in the city. An environment has been created making it very difficult to remedy these conditions. In seeking solutions, I think natural gas should be given priority as the fuel to be given principal consideration.

The use of natural gas as fuel has been designated by environmental experts as the most radical remedy for air pollution. Moreover, it is possible for it to be put into use at low cost by taking advantage of existing facilities such as coal gas utility lines and central heating furnaces. In this case, the coke that would be saved, as it would no longer be needed for the utilities, could be allocated to our steel industry, which has a large requirement for it.

In Barcelona, Spain, for example, natural gas is being used for both heating and industry for the same reason and has also been extended to Madrid. "Liquified natural gas" is imported from Libya and is refined at a gas refinery built on the coast.

As for the problem of supplying natural gas to Turkey, foreign experts with whom I have had the opportunity to be in touch have said that it is highly likely that natural gas would be found in Turkey. In fact, the discovery of natural gas in Thrace and the northeast in the course of oil exploration is proof of this and indicates that we should stress the search for natural gas, which is close in value to petroleum. Moreover, it is possible for us to obtain natural gas more favorably and economically than oil from Iran, Iraq and the Soviet Union and to obtain liquified natural gas from Libya.

It would be beneficial and money well spent to conduct a study of the matter, at least for Ankara and Istanbul, to determine its feasibility.

#### Measures

What should be done to combat air pollution may be summed up as follows:

1. Determine levels of pollution and set pollution standards.
2. Put effective controls in place to ensure that permanent facilities comply with the standards.
3. Set maximum levels, that is, limits, for discharge into the air of each pollutant.
4. Learn the control technology of sulfur oxides and nitrogen oxides and ensure full combustion insofar as possible and minimum oxide formation.
5. Take the measures necessary to reduce corrosion to a minimum.
6. In energy planning, plan to make use of the least polluting primary energy sources.
7. Set up continuous controls to ensure compliance with the standards of motor transport vehicles gas emissions.
8. Formulate land use, urbanization and industrial zone planning so as to ensure minimum air pollution.

9. Keep in close touch with international organizations and the regulations, work and research of other nations, give priority to work and research that would contribute to these matters and cooperate at the most advanced level possible.

10. Write programs for all these matters according to the most modern methods and ensure through serious methods that these programs are realized.

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